

## Ordering Codes

Codes	Descriptions
DMx2.2	Actuator AC 230 V
DMx2.2S	Actuator AC 230 V with 2 auxiliary switches

## Technical Specifications

Actuators	DMS2.2(S)	DM2.2(S)	DML2.2(S)	DMG2.2(S)
Drive torque	8 Nm	16 Nm	24 Nm	32 Nm
Damper area	1.5 m <sup>2</sup>	3.0 m <sup>2</sup>	4.5 m <sup>2</sup>	6.0 m <sup>2</sup>
Running time	30 s	80 s	125 s	140 s
	Independent of load, at nominal conditions and room temperature			
Power supply	AC 230 V ±15%			
Frequency	50-60 Hz			
Power consumption:				
- operating	5.5 W			
- at end stops	0.6 W			
For wire sizing	6.0 VA / 0.1 A @ 2ms			
Control signals				
Y1	DC 0(2)...10 V / R <sub>i</sub> > 100 kΩ			
Position Signal U	DC 0...10 V / R > 50 kΩ			
Angle of rotation:				
- Working range	90° (93° mech.)			
- Limiting	5°...85° in 5° steps			
Auxiliary switch rating	3 (1.5) A, AC 230 V			
Service life	60'000 cycles			
Sound power level	45 dB (A)			
Protection class	II			
Degree of protection	IP 54 (with cable glands, cable downwards)			
Temperature: operating / store	-20°...+50 °C / -30°...+60 °C			
Humidity	5...95% RH (not condensing)			
Weight	1.2 kg			
Maintenance	Maintenance-free			
CE Compliance	Johnson Controls, Inc., declares that these products are in compliance with the essential requirements and other relevant provisions of the EMC Directive and Low Voltage Directive			

## DMS2.2(S) / DM2.2(S) / DML2.2(S) / DMG2.2(S)

## Proportional Actuators

## Installation Instructions

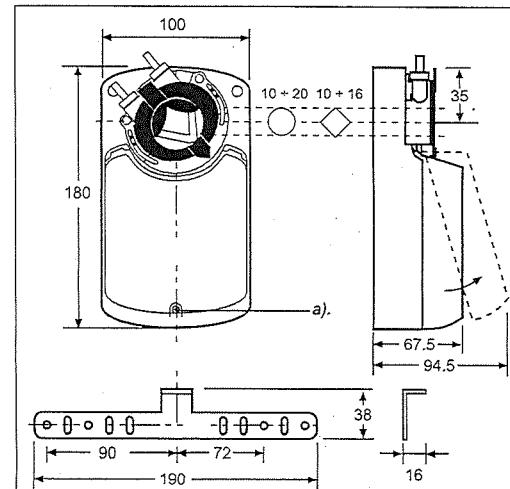
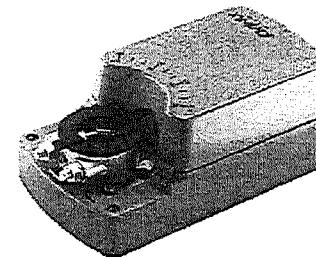
P/N 14-88360-1904 Rev. E  
Issue Date 05 2016

Figure 1: Dimensions (in mm)

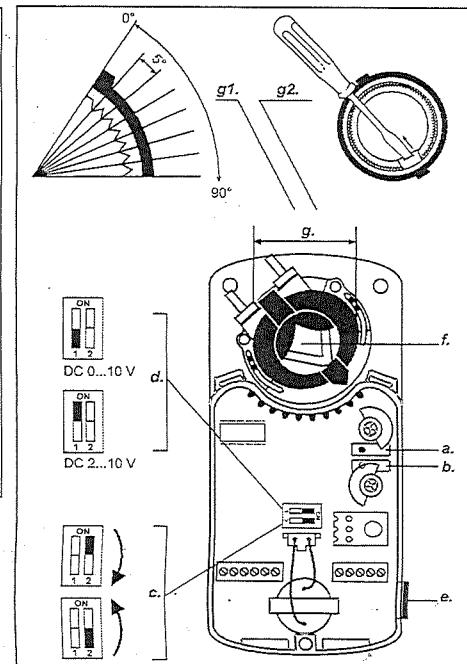


Figure 2: Actuator open

## European Single Point of Contact:

JOHNSON CONTROLS  
WESTENDHOF 3  
45143 ESSEN  
GERMANY

## NA/SA Single Point of Contact:

JOHNSON CONTROLS  
507 E MICHIGAN ST  
MILWAUKEE WI 53202  
USA

## APAC Single Point of Contact:

C/O CONTROLS PRODUCT MANAGEMENT  
NO. 22 BLOCK D NEW DISTRICT  
WUXI JIANGSU PROVINCE 214142  
CHINA

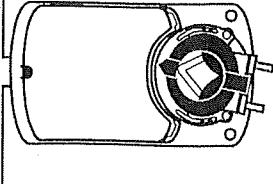
**READ THIS INSTRUCTION SHEET AND THE SAFETY  
WARNINGS CAREFULLY BEFORE INSTALLING AND  
SAVE IT FOR FUTURE USE**

**General Features**

The actuators are intended for the operation of air dampers in HVAC systems. The universal adapter allows them to be mounted directly on the damper spindle where they are secured with the locking device supplied.

Figure 1: Dimensions in mm

(a)



50 min

6

50 min



Figure 3: Mounting Instructions

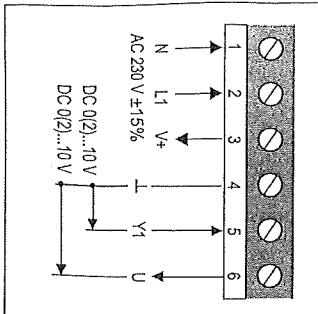


Figure 4: Proportional Control

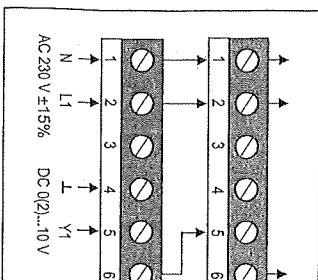


Figure 5: Parallel Connection

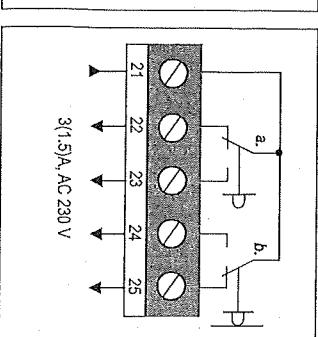
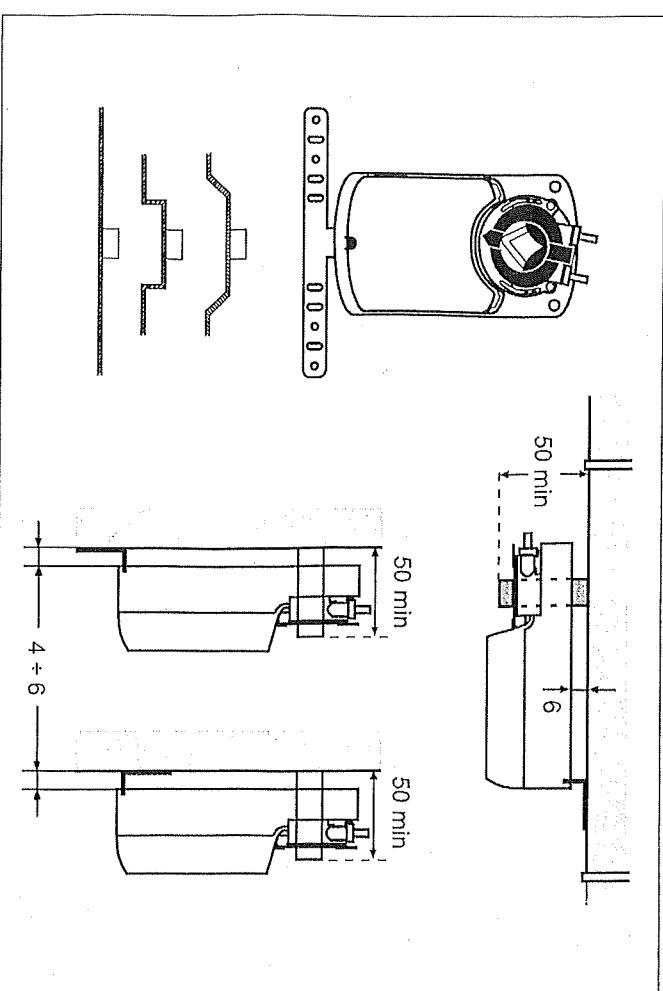


Figure 6: Auxiliary switches



**Mode of operation**

Figure 2: Actuator open

(a)

Auxiliary switch

(b)

Direction of rotation

(c)

Setting

(d)

Manual button

(e)

Adapter for:

(f)

Round spindles: Ø 10...20 mm

(g)

Square spindles: □ 10...16 mm

(h)

1 - Angle of rotation limiting

(i)

2 - Angle of rotation limiting

(j)

Releasing the adapter

(k)

Actuator at 0° position

(l)

Actuator at 90° position

(m)

In order to make the electrical connections, loosen screw (Fig. 1 a.) and remove the cover.

(Fig. 2 a.)

Feedback potentiometer: not possible.

The electrical installation work should be carried out by a qualified electrician.

Wrong connections can damage the equipment. Check the connections before energizing the power supply.

Local accident prevention regulations should always be adhered to when installing the actuators.

The actuator moves about slightly while it is working so it is important to use flexible leads for the electrical connections.

Auxiliary switches adjustment (See Figure 2 a. - b.)

Switching position adjustment a. to 30° and b. to 70°.

30°: Depress the manual button (Figure 2 e.) and rotate the adapter (Figure 2 f.) to the 30° position. Slightly loosen the Phillips screw in the cam wheel a. so that the wheel can be moved by hand. Rotate the cam wheel a. counterclockwise until the switch button can be seen. Then tighten-back the Phillips screw in the cam wheel a..

70°: Rotate the adapter (Figure 2 f.) in the same manner as before to the 70° position. Slightly loosen the Phillips screw in the cam wheel b. so that the wheel can be moved by hand.

Rotate the cam wheel b. clockwise until the switch button can be seen. Then tighten-back the Phillips screw in the cam wheel b..

Factory setting: DC 0...10 V

**WARNING:** The integrated circuits in the actuator are sensitive to static electricity. Take suitable precautions.

**Wiring**

**WARNING:** The integrated circuits in the actuator are sensitive to static electricity. Take suitable precautions.

The electrical connections for the actuators must be executed in accordance with the relevant legal requirements.

In order to avoid any personal injury or damage to the equipment or other property, always isolate the power supply before commencing any work on the electrical wiring.

In order to avoid danger to property, it is important for the equipment to be used solely for which it is intended.

**WARNING:** The integrated circuits in the actuator are sensitive to static electricity. Take suitable precautions.

The actuators are controlled by a 0...10 VDC or 2...10 VDC signal. The motor stops running when the damper end-stop or actuator end-stop is reached. For manual operation of the damper the gearing is disengaged by means of the self-resetting button (See Figure 2 e.).

**WARNING:** When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer.

**Installation and adjustment**

Figure 3: Mounting Instructions

**Installation**

Attach the actuator to the damper spindle by means of the adapter and secure the locking device with the screws provided.

**Angle of rotation limiting**

An angle-of-rotation/working range (Figure 2 g/f), of less than 90° can be limited mechanically by repositioning the adapter in 5° steps as required.

The adapter is released by simply pressing the adapter clips on the lower side of the actuator (Figure 2 g/f.).

**Selecting the direction of rotation**

By switching microswitch c the direction of rotation can be changed (See Figure 2 c.).

Factory setting: Clockwise (CW) rotation.

**Setting range**

The setting range can be changed with the switch (See figure 2 c.).

Factory setting: DC 0...10 V

**WARNING:** The integrated circuits in the actuator are sensitive to static electricity. Take suitable precautions.

The electrical connections for the actuators must be executed in accordance with the relevant legal requirements.

In order to avoid any personal injury or damage to the equipment or other property, always isolate the power supply before commencing any work on the electrical wiring.

In order to avoid danger to property, it is important for the equipment to be used solely for which it is intended.

**WARNING:** The integrated circuits in the actuator are sensitive to static electricity. Take suitable precautions.

The actuators are controlled by a 0...10 VDC or 2...10 VDC signal. The motor stops running when the damper end-stop or actuator end-stop is reached. For manual operation of the damper the gearing is disengaged by means of the self-resetting button (See Figure 2 e.).

**WARNING:** When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer.